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Hui Shen
hxs6381@rit.edu

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RIT

Design and Production of 3D Animation Short Film “Memories of the Post-80s”

By Hui Shen

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Fine Arts in Visual Communication Design

College of Art and Design

Rochester Institute of Technology

Rochester, NY

May 1, 2020

Committee Approval:

Jason Arena

Date

Associate Professor of Visual Communication Design program / Advisor

Mike Strobert

Date

Co-Drector of Vialual Communication Design program / Chief Advisor

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Abstract

“The memories of the post-80s” is a 2minutes and 8 seconds 3D animated short film which tells a story of a young man named Kai who born in the post-80s in China, living in a modern, high-tech environment, but falling into a fantasy dream and reminiscing about his simple and happy life as a child. The most important question expressed in this short film is whether a more convenient, high-tech, fast-paced modern life is proportional to people's happiness index. The main reasons for this problem are multiple, such as working pressure, stressful life, repayment of loans, health, and so on. The boredom and indifference to modern life is a manifestation caused by multiple aspects of social life problems. Because of this invisible pressure, and also to form a sharp contrast with the differences of the times, the film's author gathered many of the typical games and snacks as the main elements of childhood and brought them together to create a fantasy world full of the post-80s childhood memories which reflects how children spend their free time before the Internet and the self-media became popular to commemorate their special and wonderful time. This short film is presented in 3D. 3D is chosen to better show people's feelings when playing games. Although the design of these games was mainly based on 2D, the mood of playing at that time was as immersive as the current 3D scene. And using 3d to express the dynamics of the game is more vivid and exaggerated. The author combines various fantasies of the author's dreams around the game world. The purpose of creating in this form is to express the world in the memory of people in the post-80s, to express their mentality of escaping from the real world and their yearning for the unknown and wonderful world.

Keywords

The Post-80s Concept Design Prop Design 3D Rendering 3D Modeling 3D Animation



(Picture by Hui Shen)

Introduction

The term "post-80s" comes from the vocabulary created by international sociologists discussing social development. It means a generation born in 1980-1989. Sociologists studied every 10 years after the Second World War in a phase. The 1980s were the people born between January 1, 1980, and December 31, 1989. Sometimes it's pointed out that young people who born in the late 1970s which means the younger generation of China after the opening. The United States also calls this generation "Y generation." The post-80s refers to the synonym of a generation born after the state implemented the family planning according to law. This generation of young people is basically the only child. They have experienced the fastest growing period in China since they grew up, such as the updated technologies and changed textbooks. The country has paid attention to this and discussed many of the problems faced by the post-80s in this society.

With the 80's have basically entered middle age, they gradually have children and start a new family. In

today's Chinese society, the life of middle aged people is really hard. They must support the elderly and raise their children at the same time. The Chinese people like to accumulate wealth, because one day when they are sick or something bad happens, they can be solved with the money, and also they will pass the money to their children to reduce their living expense. In particular, children 's education expense is also a huge one. The mentality of "Wishing their children not to lose at the starting line of life" prompts parents to pay a lot of money for their children 's education. So in China, the life pressure of middle-aged people is also conceivable. Facing the double pressure of life and work, they can not help but feel, "a better life as a child". Therefore, there are even many post-80s authors, animators, social leaders who have published and created many books or works on special life experiences. As a result, the market began to popular to commemorate the post-80s children's games, learning tools, and snacks, and other elements of their life, and even have a dedicated collector to use them to do exhibitions.

So combined with this background presentation and the author's own feelings, these inspired the author of this thesis to make an animated short film as the graduation design works in order to express the post-80s childhood. In this short film, it contains a lot of game-based elements as the main content. The purpose of the thesis is to express the design thinking of the short film, tell the production process, explain the methods and reasons, and show the more detailed of the design through inserted pictures and finally to encourage all the post-80s that "Remain true to our original aspiration, keep pressing ahead, and to overcome all difficulties in our lives."

Pre - Production

Research and inspiration

As I grew older, I felt the pressure of survival in modern society as a member of the post-80s as well.

Less party with old friends and classmates, but more and more overtime work, Trying hard to balance the life of family and career. The post-80s will also be labeled into several kinds of labels, like Moonlight clan (live from paycheck to paycheck), 996 (work from 9 a.m. to 9 p.m, 6 days a week), Older youth (people around 30 years old but still single), and so on. These social labels also clearly show a high level of social concern for this generation of young people. Every time I was hanging out with my similar age friends, we always talk about the special life of our childhood. Most of the things we played before are all gradually into the museum.

First, I prepared a questionnaire and conducted a series of surveys of my peers around me. The questions as simple I list down below:

1, Please list one or more of your childhood favorite game items (can be a toy, game, game carrier...)

and tell me why you like it.

2, Please list some of your favorite snacks in your childhood and tell me why you like it.

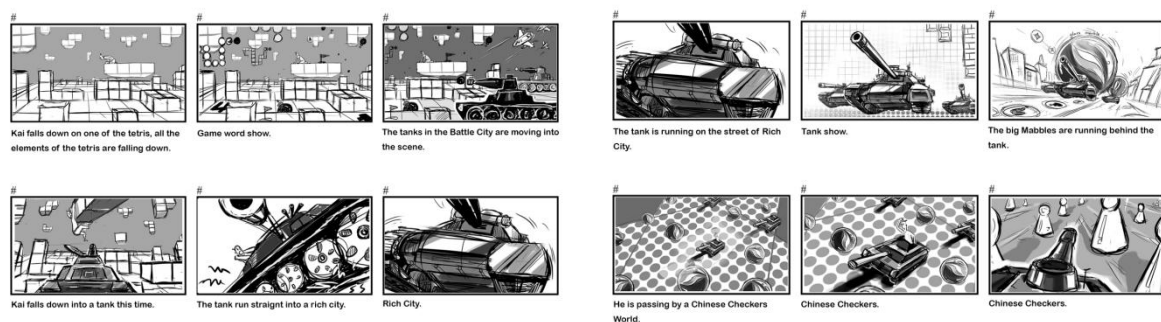
3, Compared with the popular mobile games, PC games, what do you think of the game when you were a child?

4, Have you still kept some childhood objects until now, why?

By getting all kinds of answers and stories, I am even more determined to make the theme of the post-80s childhood, follow the 80s to recall this special and important period, and commemorate our unique memories.

After the step of the research and mood board collection, the film author collected all the information and completed the two-dimensional pro-design and also the four-view-two-dimensional character design by hand drawing. Eventually, the author finished it through modeling and rendering by using 3D technology, using dramatic visual style and animated story setting. This thesis would faithfully record the creative thinking and film production process of this creative animated short film.

Story & Storyboard



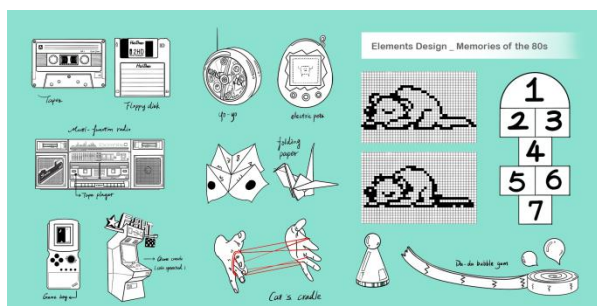
(Pictures by Hui Shen)

The leading actor is a member of the last 80s who just turned 30. He is boring and watching TV. He knows that today is his birthday through the FUI (Future User Interface) calendar reminder system, but he didn't think about his 30th birthday. Then the UI interface popped up an electronic birthday cake, which seemed to be the system wanting to celebrate his birthday, but Kai chose ignore button. With the action that he clicks the ignore button, strange things happen. It seems like that the ignore button has caused some strange changes, the surrounding environment is undergoing tremendous changes. He fell directly into a game world, an old game world, a world full of Tetris, Greedy Snakes, Mine Clearance and other childhood games, which surprised him so much. He didn't know what happened, and he was at a loss for a while. The only thing he can do is running along the situation. Maybe he is caught in his memories or something else he does not know. With a double emotion of panic and surprise, he ran vigorously in this magical world to see more and more in front of him.....

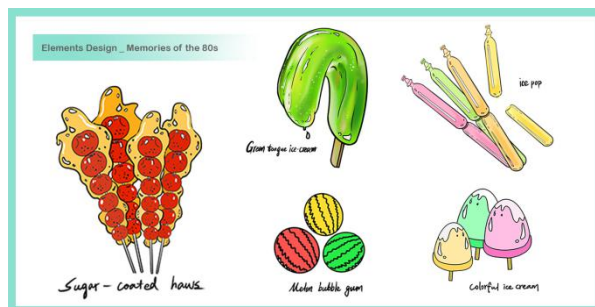
Storyboard is the most important part of animation and motion. The storyboard is responsible for converting the text description of the script into a picture that narrates the progress of the story. With the storyboard, the animator can have a basic concept of the scene scheduling in the lens to design the performance of the character. Layout Artist can also complete the Story to design the final shot. Because he is a visual communication method, it is particularly helpful to these visual media. For me, it is impossible to make a short film without drawing a storyboard. If don't, it's like making a short film without thinking. When I conceived the content of the storyboard, I also conceived the character design, scene design, the connection and transitions between each shot, and then use the ideas together to express the story completely.

Props Design

Props play an important and decisive role in animation and movie works and also in portraying the character and expressing the character's emotions. It is not only an important part of environmental modeling, but also an important modeling element of scene design. It also interacts with the scene in the modeling image of the environment, atmosphere, space level, effect and tone composition. It is inseparable; in addition to explaining the background of the story, promoting the development of the plot, rendering the film and supporting performances. The role of props is very important in the short video, the design style of the props is also the style of the entire film. There is only one character in this short film, and the rest are props. There are so many interactions between the main character and the props, which is also the highlight of this short film. I redesigned different old games, enlarged the size of the props, and made the characters smaller, forming such a contrast to achieve the characteristics of fantasy dreams.



Based on my findings, I compiled a list of most popular games and snacks of the post-80s childhood, including indoor and outdoor activities, toys, and video games.



After collecting them together, I drew them down by hand as parts of the pros design. The reason why I decided to draw these elements by myself instead of using these pictures directly as

(Pictures by Hui Shen)

reference pictures helping to make 3D models is that I want to get familiar with these elements and deepen my impressions on them and also think that how to arrange them into my short film during the drawing period.

Character Design



@ Hui Shen

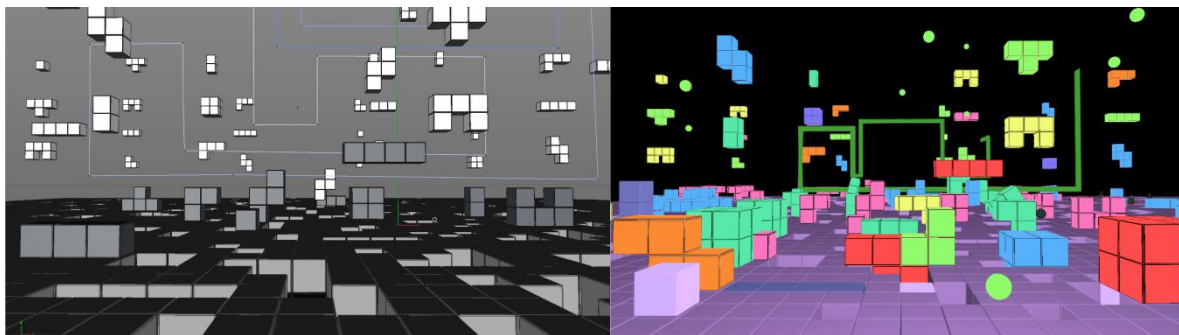
(Pictures by Hui Shen)

What is character design? I remember that there is a perfect answer of this question from my favorite

book which written by Stephen Silver, a great character designer and teacher. In this book, it said that *“Character design plays a major role within all facets of the entertainment industry. It is truly the backbone for intellectual properties. Without a character, there is no story, no story, no character animation, no storyboard, no video game, no comic essential part of the story process. Character is used to conceptualize initial ideas that could exist in various mediums. These design may be loose and rough, or clean and rendered for print or production use.”* (Silver,12). Before I started design the character, I should give it a background, a personality, which means I should design who is he/she, the age, the sex...etc.

In the process of character design, the scope of this design is not too wide. She/He must be a post-80s young man or woman. Because of the most of the people I consulted with played games most were men, I finally designed the character Kai based on the personal image of my boyfriend. Because of the limited production time, I must consider the design that can be made within the time allowed can be easy to build a 3D modeling and the computer rendering can drive. A simple outfit and a short hair style are more suitable for my needs.

Animatic

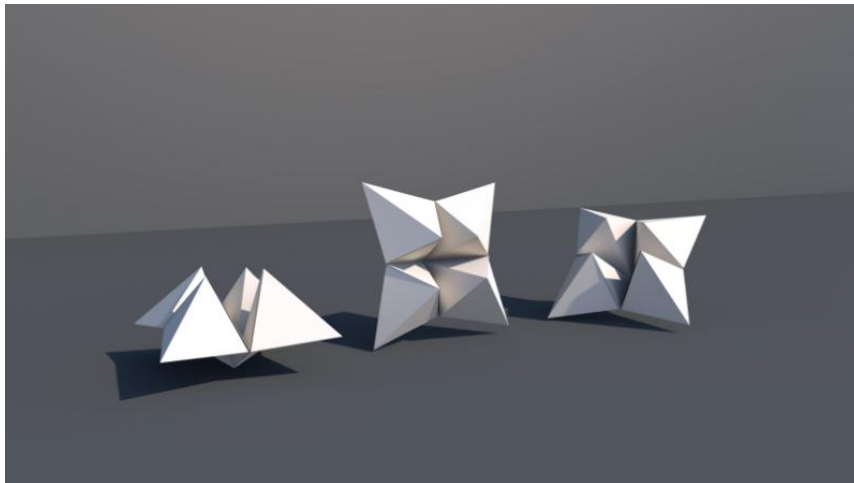


(Pictures by Hui Shen)

Animatic is a key step that cannot be ignored in making movies and animations. The role of this step is

to combine all the elements you prepared in the previous steps with sound effects, background music, refer to the previous story board, arrange the actions and shots, and make a rough moving story board. The timing of the finished animatic and the final product's shot, music, and rhythm should be the same. To make an important reference for the final production of the film later. The animatic can be 2D or 3D styles. It depends on what kind of film you want to be create. After this step is almost completed, the work of 3D modeling can be started.

Production



(Pictures by Hui Shen)

Modeling

When I was making an animation, I started making the 3D environment and character model needed for the short animation at the same time. My model style is relatively simple and cartoon style, especially the environment, which needs to create an atmosphere of the game world. My modeling platform uses two different software: Maya and Cinema 4D. This is because there is a distinction between reality and game world in my story. So I chose to use Maya to make relatively real scenes, for

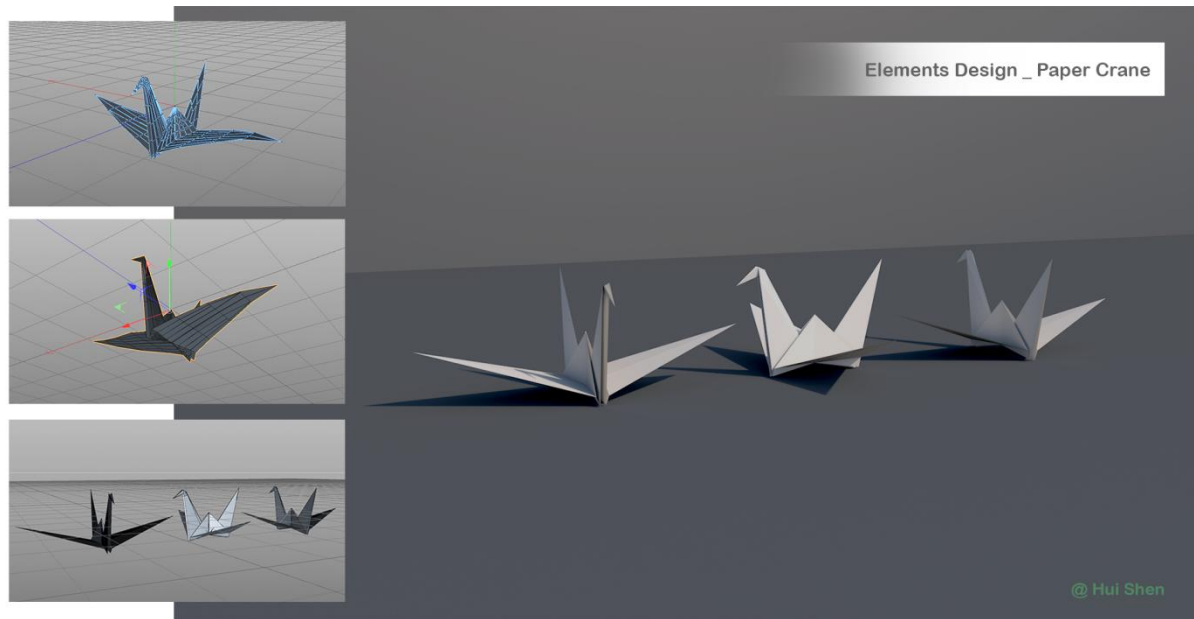
example, the living room. Maya is very useful and good at simulating a real light source environment.

The scenes and elements after entering the game world are all completed with Cinema 4D. I made this part by using Cinema 4D because I want to use the animated functions and “MoGraph” which are more appropriate to complete what I want of my project.



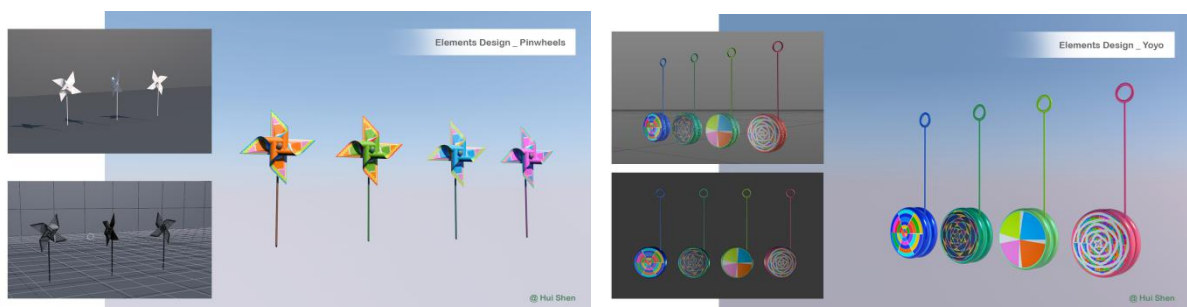
(Pictures by Hui Shen)

The most difficult part of modeling is paper folding of paper crane. It looks like a really simple object but when I was modeling it, I got stuck. I have no ideal how to model this kind of object. I didn't know where I should get start. So I found a paper, real paper. I made a paper cranes by my hands, and tried to remember the steps well. Then I created the model from a thin cube, and moved the points and lines to follow the real paper folding steps. It takes a longer time than I think before I am doing it. Fortunately the result is good. Better than I expected.



(Pictures by Hui Shen)

Texturing



(Pictures by Hui Shen)

Due to the content requirements of my animated short film, materials and textures are more important, especially textures. To show the color feeling and the exaggerated atmosphere of the game world, I decided to use hand-painted textures to add luster to my model. Painting is my first strong point, and I hope to express it in my final project. I do enjoy painting textures by myself. I studied all the model elements that require hand-painted textures. In addition to those models with specific content requirements, I designed a series of colored flat patterns for trial. According to the 3D final preview rendering effect, make some changes and adjustments at the same time. This part is mainly art design.

Whether the hue and color of the image are harmonious is crucial in the entire picture. Regarding the hand-drawn style, to stay close to the game world, I chose to use some simple geometric figures, inspired by the game itself, like electronic House pet, tetris, checkers and so on. For those stickers that require actual content, I chose to use cartoon drawings to complete.



(Pictures by Hui Shen)

Rigging



@ Hui Shen

(Pictures by Hui Shen)

3D emoticons and action rigging, this part is more difficult for me, because I have never been exposed

to rigging courses. This is the first time I have done the binding of facial expressions and movements. I have studied for a long time and found that there are certain rules for ragging. It has a logical, one-by-one way of operating. Therefore, there is something wrong with all efforts. Rigging errors will not only affect the subsequent animation production process, but also lead to some distorted wrong pictures. So this is not an easy job. And It is difficult to find a suitable tutorial in the search for learning videos related to Cinema 4D rigging, because C4D is a newer software that is later on the market. There are very few tutorial videos on this area. So I first learned about the rigging knowledge by using Maya. After all, this character exists in two different software production environments. I need two sets of rigging files made by two different software, which can be used for post-animation animation. After several studies and repeated revisions and productions, a set of basic expressions and movement rigging was finally completed. However, this did not relieve me. In the face of the different operations of the C4D playgroup, I used many days to barely make a basic rigging. It doesn't feel as good as Maya's set of rigging. But in general, there is no problem with the basic movements, and it has been considered successful.

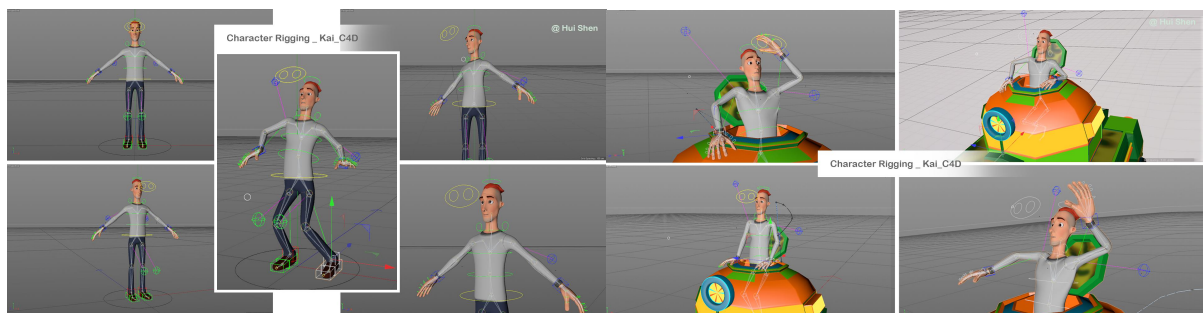
Animation



(Pictures by Hui Shen)

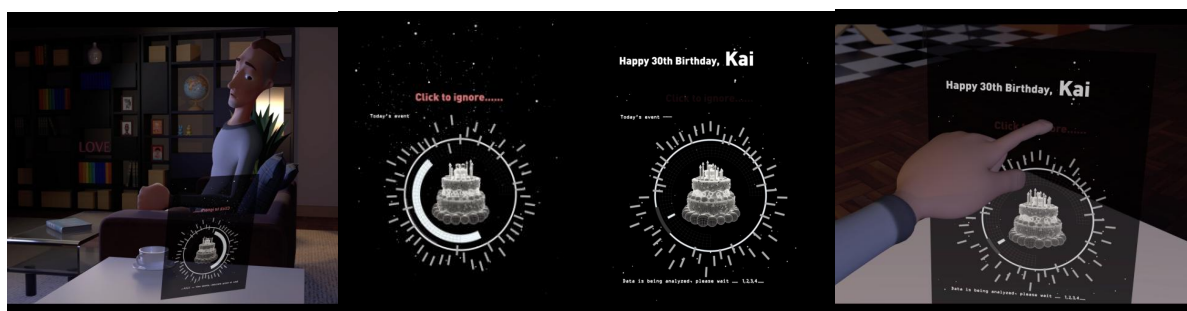
The animation is the most interesting part of the production. Animation is a critical step in the final implementation of all previous efforts. Tuning animation is the most difficult part of this work, and it is also the most laborious and time-consuming process. The adjustment of animation requires skilled software operation. While adjusting the character expressions and actions, make some special effects to match the animation content. First of all, in terms of character expressions and movements, it is not easy to be smooth. Adjusting the curve, key frame is the most critical. I think the most difficult part is to master the length of the exercise and to show the movements that should be smooth within a certain time range. This step requires constant modification and repeated preview of the effect. Mastering the basic knowledge of animation principles is the most basic. During the production of this short film, I carefully read a book "The Animator's Survival Kit" which written by Richard Williams. By carefully studying the content of this book, I also gradually understood the principles of some movements by following some small exercises with hand-drawn movement laws. Time and space, key frames, different ways of adjusting animation. The 379 pages of content enrich my animation knowledge.

However, many different problems were encountered during the actual operation. Movements that do not adjust smoothly will still appear. And my production time is very limited. If you follow a 3D animation with characters, it will take more time and energy. Under the limited time, I consulted some 3D animation students to recommend to me a website, “mixamo.com”. These websites provide some basic movements of characters for free. You need to upload a complete 3D character model, which will automatically bind the linked bones. This greatly reduced a small part of my animation workload, and at least solved some basic movements, such as walking and running. Although it can't satisfy all the actions, some specially set actions still need to be adjusted manually. But this method is also preferable, and I can also adjust the downloaded basic actions for the second time.



(Pictures by Hui Shen)

Future UI



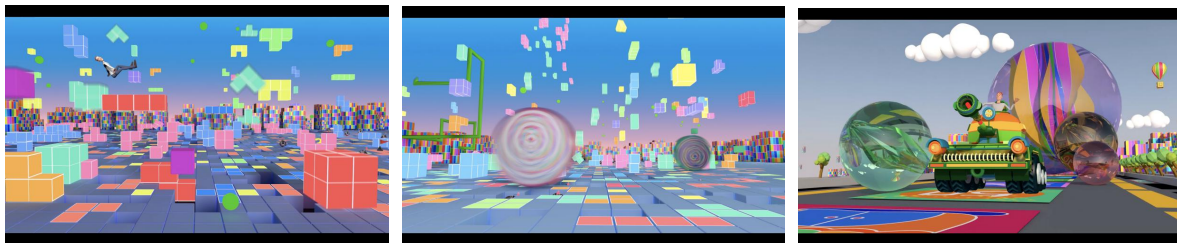
(Pictures by Hui Shen)

The existence of Future UI is also the flash point of this project. It is also the most suitable design for my major. The addition of FUI can also clearly show that my story background is in a modern society

with advanced technology. High-tech can bring people convenience and efficiency, but does it also take away something? This is the thought-provoking point of my short film.

Post - Production

Lighting & Rendering



(Pictures by Hui Shen)

Lighting and rendering are the souls of a one-step 3D animated short film. The light and shadow effect and quality of the picture are all realized in this step. I thought I finally got through the difficult animation process and finally ushered in seeing the dawn of victory, and then did not. This step not only tests the aesthetics you see, the operation of the software, but also the affordability of the machine. It is also difficult to render with the least amount of time under the condition of ensuring a certain better quality.

First, the light part. In the Maya software, you need to touch a scene in the night of your living room, under the dim standing lights, Kai is watching TV and dozing. The main lighting features in this scene are night, indoors, a dim standing light, constantly flashing TV light, and some ambient light and reflections. Make sure that the main light source is a yellow standing light, followed by TV light. The main light source is laid, and auxiliary light needs to be added to help the effect of the environment. It should be noted here that the TV is running, so the TV light needs to adjust the animation K frame to simulate the light and shadow change of the program switch of the TV industry. After entering the game world, most of my light source movement in Cinema4D software is world light, simulating real outdoor

lighting effects. There is a dream-like scene behind which I manually adjust the lights. In addition to some basic equipment, the lighting settings are mainly based on personal ideas. It will be very interesting to keep trying to have unexpected effects.

Compositing

Synthesis is the last step in making a short film, which is to combine the rendered video with the selected soundtrack and sound effects, toning, processing the video style, and adding the required special effects. This step is to gather all the prepared things together for a grand ball. And the means to realize it is to use AE synthesis software, a very practical synthesis software. I will also use Adobe Premiere, a software dedicated to sound effects and soundtrack processing and video editing.

Because there is no dialogue in this short film, but there is a feeling of animation MV, so each shot must be in line with the melody of the soundtrack. Choosing a soundtrack is not easy at all. It is not easy to find a soundtrack that can be used and that matches the style and atmosphere of the film.

Normally, when an animation achieves the Animatic step, it is necessary to find good music. You can contact the music producer you know and make several music demos based on the animatic for me to choose. However, because I encountered some personal problems during the production process and delayed the completion of this step, my choice was to go to the music website to find ready-made soundtracks that can be sold to me. It sounds easy, but it doesn't. It feels like a haystack. For many days I was wearing headphones and listening one by one. Finally, through repeated comparisons among hundreds of soundtracks, Lenovo selected a usable soundtrack, Simple Life, produced by Robert Meunier. When I chose this one, I was really ecstatic when the main soundtrack. After the main soundtrack is selected, next I need to find some sound effects that can be used. The sound effects I

need for this movie are basically some game soundtracks because they are all famous game projects of that era, and the sound effects are relatively easy to find. The sound of the stereo cannot be greater than the main soundtrack, all this must be adjusted from the premiere.

Discussion

Through the production of this short film, I have summarized many questions and experiences. First, I found it difficult to complete a 3D animation work in a short time. 3D works are very different from the production of 2D animation works, and even some hardware requirements are very high. The familiarity of the software and the correcting of errors in time are the difficulties of 3D production. The most tiresome thing about 3D production is the constant adjustment and testing rendering. Because rendering takes a long time, it is difficult and time-consuming to optimize the rendering and constantly change the process of adjusting the picture. The distribution of production time is also critical here. Be sure to allow enough time for rendering and post-production. Check every little detail before starting to render. Don't miss out and have wrong actions and animations, otherwise, the rendering will be completely invalid. Here, layered and segmented rendering is a good way, and finally all are synthesized in AE. Secondly, the production of 3D animation requires every step of the previous design number, every shot, every picture. However, there are still situations that are not consistent with previous settings. It may be caused by the limitations of the software. Therefore, the preliminary design should be prepared for 3D animation, and the 3D image and effect should be combined. In addition, it is also difficult to bring people the feelings I want to express through an animated short film. First of all, does it resonate with the audience, and does the audience understand the elements in the animation and the meaning brought by the dynamic. Here I feel the lack of communication with others. In the

animatic step, some viewers should watch more suggestions and collect questions, how to view the viewer's perspective, and what is the problem. This is critical, otherwise, it will not resonate with each other, causing some viewers to have doubts about certain parts of the animation and cannot understand it.

Screenings and Critique

After the final video was played, I received many suggestions from classmates and teachers. This includes character design, transitions, and storytelling. These questions are indeed what I have thought about in the production. The first problem is the gender of the protagonist. At first, I wanted to use my female image as the main character. It is more suitable for women, but women need to make hair and hair movement. This is difficult for me to do in only one semester. And, most of the experience of the game I also consulted with many men in their childhood, after all, boys play more games. So in the end, I chose to focus on the image of my boyfriend. The problem with the transition part is also that I am not very satisfied with the fact that the special effects of the lens in the real world into the game world are not too good-looking. I'm stuck on the use of AE special effects software, and I really don't know how to make the kind of gorgeous transition in my mind. This part does have some regrets. I hope to have the opportunity to learn more and perform well in this part. Next is the expression of some stories, some viewers may not understand the meaning of the story at the end. My expressions are somewhat subtle and not as direct and clear as most American expressions. At this point, maybe I need to think about where it is not clear. Although the plot is in MV form, it must also clearly express the meaning and convey the correct meaning.

Conclusion

This is the first time I have independently completed the production of a 3D animation. The difference from the previous 3D motion is that the main object is changed from some simple geometric figures and simple objects to actual 3D animated characters, a music MV type animation video. This is a difficult challenge for me.

I am very happy to be born in the 1980s to be a post-80s. Our childhood is so special and unforgettable.

This kind of experience should be stored in your own heart. When you are in your future life, no matter what kind of difficulties you encounter, you may be sad or lost. I hope I can remember the days when I was a child innocent and innocent. That life without too many communication devices and without too fast a pace of life. Every bit of life will be remembered in my heart. It is the most precious treasure and the driving force of my life. Even at this age, I can still remember the sound of games and the sound of play at that time when the night is quiet. Through this animated short film, I also recalled my slow childhood life. Faced with the impending step into middle age, marriage, and the future of having children, the uneasiness in my heart can slowly calm down through the production process of this short film. Although the production time is very tight and the process is difficult, I still didn't give up and tried to do my best to complete it under limited conditions. Although I am very dissatisfied and inadequate to throw this short film, I still appreciate everything around me for giving me the opportunity to carry out such a production process. My personal experience is rather bumpy. I don't like some Chinese students to be so easy. It is a miracle for me to be able to study in the United States, expensive expenses, hard life, health, and natural disasters are all obstacles for me, but I am very happy that I made it. In the past three years, I have come across many difficulties of all kinds. So in the final graduation project, I didn't make it like some other kinds of short films that expressed how deep the

meaning was. I chose a step to relax, to miss some of the beautiful things in my childhood. I hope that audiences who have the same experience as I have watched this short film and will be able to remember the best moments in their lives. Just like Kai, maybe he just had a dream, maybe took a nap, but in the end, his faint smile was a relief and he released the pressure of his life at once. I hope that everyone can get rid of the hardships in life, get relief, and live freely.

Thanks

Here, I would also like to thank a lot of people, first of all, my parents, and thank them for using all their strength to send me to study abroad to complete my 20-year dream. Thank you, my teachers and professors. Although we didn't know each other too much, I really learned a lot from them. They are all great teachers. and I would also like to thank the people around me, my lover, friends, classmates, they are all my strengths. When all difficulties encountered in my life, I have received everyone's help. I so appreciate it. I am very lucky, and I am satisfied with everything in my life including the difficulties.



(Picture by Hui Shen)

Works Cited

Silver, Stephen. *The Silver Way: Techniques, Tips, and Tutorials for Effective Character Design*. Los Angeles, CA: Design Studio Press, 2017.